Remarks

Claims 1 and 3-20 are pending in the application. Claims 1-20 are rejected. All rejections and objections are respectfully traversed.

8. Claims 1 and 3-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

The claims have been amended to indicate that the adaptive filtering jointly performs de-interlacing and downsampling of the interlaced picture as described in the specification and shown in the figures: "[024]Figure 2 shows an adaptive filtering system 200 that jointly performs de-interlacing and downsampling according to our invention."

10. Claims 1 and 3-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims have been amended to provide antecedent basis for the macroblock motion type as describe in the specification and Figures.

12. Claims 1, 3-5, 7, 12-13, and 15-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sull et al (US 2004/0126021 A1) in view of Johnson (US 2001/0019630 A1).

Sull filters DCT coefficients in the DCT or frequency domain. The samples that are filtered by the invention are pixels in the spatial domain: "[0281"Frame filtering uses samples from the frame, and field filtering uses only samples from one field. Frame filtering is used at pixel regions where no interlacing artifacts are present and field filtering is used at pixel regions where interlacing artifacts do exist. Based on the side information decoded from the compressed input video 201, including coding modes and/or motion vectors, indications of interlacing artifacts for a pixel region are determined, and adaptive frame/field filtering is applied accordingly to the pixel region." Figure 4 also shows samples that are pixels "[038] Figure 4 shows one example of relative sample-positions of a partial macroblock 400 before and after filtering, where a down-sampling ratio of 2 in both the horizontal and vertical dimensions is assumed. In Figure 4,

the symbols are luma-input/top-field 401, luma-input/bottom-field 402, chroma-input/top-field 403, chroma-input/bottom-field 404, the luma-output 405, and the chroma-output 406. The frame-based or field-based filtering produces output samples in a lower-dimension sampling grid. The positions of the output samples effectively depend on the filter coefficients that are used to process the input pixel values."

Because Sull processes in the DCT domain, he needs to know the DCT type, i.e., frame-DCT or field-DCT, and so he selects the correct set of coefficients to produce a progressive frame. Note that Sull's processing for P and B frames is much more complex because he needs to deal with frame differences.

In contrast, the invention operates on reconstructed pixels obtained by decoding the compressed input video, the invention does not have to deal with these issues. The basic processing steps are the same regardless of whether the frame is an I, P or B-frame.

Sull is inappropriate art. Johnson also encodes in the DCT domain and con therefore not cure the defects of Sull.

With respect to claims 3-5, 7, 12-13, and 15-20, Both Sull and Johnson operate on DCT coefficients and not pixels.

13. Claims 6 and 8 are rejected under 35 U.S C. 103(a) as being unpatentable over Sull, as modified by Johnson, and further in view of Simsic et al (US 6,269,484 B1). The teachings of Sull as modified by Johnson have been discussed above.

With respect to claims 6 and 8, Simic also operates in the frequency domain, and not on pixels in the spatial domain.

It is believed that this application is now in condition for allowance. A notice to this effect is respectfully requested. Should further questions arise concerning this application, the Examiner is invited to call Applicants' attorney at the number listed below. Please charge any shortage in fees due in connection with the filing of this paper to Deposit Account 50-0749.

Respectfully submitted,

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